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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,245	12/04/2003	Charles A. Gealer	P16923	7794

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EXAMINER	
IM, JUNGHWA M	

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/728,245	GEALER, CHARLES A.	
	Examiner	Art Unit	
	Junghwa M. Im	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,4,11 and 14* is/are pending in the application.

4a) Of the above claim(s) *7-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,4,11 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alcoe et al. (US 6744132), hereinafter Alcoe in view of Baba (US 6046077).

Regarding claim 3, Fig. 1 of Alcoe shows an apparatus comprising:

an integrated circuit package [27];

an integrated circuit die [37] coupled to the integrated circuit package; and

a stiffener portion [24] coupled to the integrated circuit package and surrounding the integrated circuit die, wherein the stiffener portion and the integrated circuit package define a well in which the integrated circuit die is disposed;

a thermally-conductive material [32] is disposed in the well; and

a heat sink coupled to the stiffener portion and in contact with the thermally-conductive material, the thermally-conductive material disposed between the integrated circuit die and the heat sink.

Fig. 1 of Alcoe shows most aspect of the instant invention except "a thermally-conductive material is in contact with the stiffener portion and the integrated circuit die." Fig. 6 of Baba shows a heat sink structure wherein a thermally-conductive material [9] is in contact with the stiffener portion and the integrated circuit die.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Baba into the device of Alcoe in order to have a thermally-conductive material is in contact with the stiffener portion and the integrated circuit die to increase the heat transfer.

Regarding claim 4, Fig. 1 of Alcoe shows underfill material [50] disposed between the integrated circuit die and the integrated circuit package.

Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki (US 6570815) in view of Alcoe and Baba.

Regarding claim 11, Fig. 19 of Kashiwazaki shows a system comprising: a microprocessor comprising: an integrated circuit die (532, 534) and a double data rate memory (501a, 501b) electrically coupled to the microprocessor (col. 3, lines 43-45).

However, Fig. 19 of Kashiwazaki fails to show that the integrated circuit die comprises an integrated circuit package; an integrated circuit die coupled to the integrated circuit package; and a stiffener portion coupled to the integrated circuit package and surrounding the integrated circuit die, wherein the stiffener portion and the integrated circuit package define a well in which the integrated circuit die is disposed; a thermally-conductive material is disposed in the well, a thermally-conductive material is in contact with the stiffener portion and the integrated circuit die; and a heat sink coupled to the stiffener portion and in contact with the thermally-conductive material, the thermally-conductive material disposed between the integrated circuit die and the heat sink.

Fig. 1 of Alcoe shows an apparatus comprising: the integrated circuit die comprises:

an integrated circuit package [27];

an integrated circuit die [37] coupled to the integrated circuit package; and

a stiffener portion [24] coupled to the integrated circuit package and surrounding the integrated circuit die, wherein the stiffener portion and the integrated circuit package define a well in which the integrated circuit die is disposed;

a thermally-conductive material [32] is disposed in the well; and

a heat sink coupled to the stiffener portion and in contact with the thermally-conductive material, the thermally-conductive material disposed between the integrated circuit die and the heat sink.

Fig. 1 of Alcoe shows most aspect of the instant invention except "a thermally-conductive material is in contact with the stiffener portion and the integrated circuit die." Fig. 6 of Baba shows a heat sink structure wherein a thermally-conductive material [9] is in contact with the stiffener portion and the integrated circuit die.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Baba into the device of Alcoe in order to have a thermally-conductive material is in contact with the stiffener portion and the integrated circuit die to increase the heat transfer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Alcoe and Baba into the device of Kashiwazaki in order to have an integrated circuit die comprising an integrated circuit package, an integrated circuit die coupled to the integrated circuit package and a stiffener portion coupled

to the integrated circuit package and surrounding the integrated circuit die for a stable system configuration.

Regarding claim 14, Kashiwazaki discloses a system according to further comprising: a motherboard electrically coupled to the microprocessor and to the memory (col. 3, lines 43-45).

Response to Arguments

Applicant's arguments with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jmi

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SUPERVISORY PATENT EXAMINER
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